mate the opposing facets of the aligned input and output fibers 12 and 14. The facets of the optical fibers 12 and 14 are polished end faces and their physical juxtaposition limits optical losses. The four stages 16 (Fig. 1) on the input side of the switch 10 translate along the vertical rails 20. On the output side of the switch 10, the five stages 18 translate along the horizontal rails 22. Once the selected input and output fibers 12 and 14 have been aligned, they are pressed together along a corresponding Z axis to make a fiberoptic connection. In Figs. 1 and 2 input #1 is connected to output #2, input #2 is connected to output #4, input #3 is connected to output #1, and input #4 is connected to output #3. Output #5 is not connected to any input. The inputs in the preceding sentence are numbered #1 through #4 from left to right in Fig. 1. The outputs are numbered from #1 through #5 from top to bottom in Fig. 2.

In the Claims

Please cancel Claims 3, 6, 7, 9, 10, 13-15, 19, and 21-25.

Please revise Claims 1, 5, 8, 11, and 20 as follows in clean form per 37 CFR §1.121(c)(1)(i). An annotated version of all claim amendments made herein is separately attached hereto in accordance with 37 CFR §1.121(c)(1)(ii).

1. A non-blocking mechanical fiberoptic matrix switch, comprising:

N input optical fibers;

M output optical fibers;

a first plurality of stages each supporting an end portion of a corresponding one of the N optical fibers;

a second plurality of stages each supporting an end portion of a corresponding one of the M optical fibers;

means for translating the stages along a plurality of overlapping paths to align a facet of a selected one of the N input optical fibers with a facet of a selected one of the M output optical fibers; and

a plurality of collimating lenses, each for transmitting a beam of light between aligned input and output fibers.

5. The switch of Claim 1 wherein an end portion of each fiber has a lens attached thereto.

8. The switch of Claim 1 and further comprising a central panel having a plurality of holes, each hole having a lens positioned therein.

11. A method of switching beams of light directly between selected ones of N input optical fibers and M optical output fibers, comprising the steps of:

supporting an end portion of each of a plurality of N input optical fibers for independent translational movement along a first set of paths;

supporting an end portion of each of a plurality of M output optical fibers for independent translational movement along a second set of paths that overlap the first set of paths;

translating a selected one of the N input optical fibers and a selected one of the M output optical fibers to align the fibers to permit a light beam to be transmitted from the selected input optical fiber to the selected output optical fiber; and

collimating each beam of light between aligned input and output fibers.

20. A non-blocking mechanical fiberoptic matrix switch, comprising:

N input optical fibers;

M output optical fibers;

a first plurality of stages each supporting a ferrule surrounding an end portion of a corresponding one of the N optical fibers;

a second plurality of stages each supporting a ferrule surrounding an end portion of a corresponding one of the M optical fibers;

means for translating the stages along a plurality of orthogonal X and Y axes to align a facet of a selected one of the N input optical fibers with a facet of a selected one of the M output optical fibers;

a central panel having a plurality of holes, each hole being sized for having the ferrule surrounding a selected one of the N input optical fibers inserted into a first end of a selected hole in order to mate the facet of the selected one of the N input optical fibers with the facet

ATTACHMENT 2

ANNOTATED CLAIM AMENDMENTS PER 37 CRF §1.121(c)(1)(ii)

1. (Once Amended) A non-blocking mechanical fiberoptic matrix switch, comprising:

N input optical fibers;

M output optical fibers;

a first plurality of stages each supporting an end portion of a corresponding one of the N optical fibers;

a second plurality of stages each supporting an end portion of a corresponding one of the M optical fibers; [and]

means for translating the stages along a plurality of overlapping paths to align a facet of a selected one of the N input optical fibers with a facet of a selected one of the M output optical fibers[.] ; and

a plurality of collimating lenses, each for transmitting a beam of light between aligned input and output fibers.

5. (Once Amended) The switch of Claim 1 wherein an end portion of each fiber [is surrounded by a ferrule.] has a lens attached thereto.

8. (Once Amended) The switch of Claim 1 and further comprising a central panel having a plurality of holes, each hole [being sized for having an end portion of a selected one of the N input optical fibers inserted into a first end of a selected hole in order to mate with a facet of a selected one of the M output optical fibers having an end portion inserted into a second end of the selected hole.] having a lens positioned therein.

11. (Once Amended) A method of switching beams of light directly between selected ones of N input optical fibers and M optical output fibers, comprising the steps of:

supporting an end portion of each of a plurality of N input optical fibers for independent translational movement along a first set of paths;

supporting an end portion of each of a plurality of M output optical fibers for independent translational movement along a second set of paths that overlap the first set of paths; [and]

translating a selected one of the N input optical fibers and a selected one of the M output optical fibers to align the fibers to permit a light beam to be transmitted from the selected input optical fiber to the selected output optical fiber[.] ; and

collimating each beam of light between aligned input and output fibers.

20. (Once Amended) A non-blocking mechanical fiberoptic matrix switch, comprising:

N input optical fibers;

M output optical fibers;

a first plurality of stages each supporting a ferrule surrounding an end portion of a corresponding one of the N optical fibers;

a second plurality of stages each supporting a ferrule surrounding an end portion of a corresponding one of the M optical fibers;

means for translating the stages along a plurality of orthogonal X and Y axes to align a facet of a selected one of the N input optical fibers with a facet of a selected one of the M output optical fibers;

a central panel having a plurality of holes, each hole being sized for having the ferrule surrounding a selected one of the N input optical fibers inserted into a first end of a selected hole in order to mate the facet of the selected one of the N input optical fibers with the facet of the selected one of the M output optical fibers having the ferrule surrounding its end portion inserted into a second end of the selected hole; and

means for moving the ferrules [of at least some of] relative to the stages along a plurality of Z axes generally perpendicular to the X and Y axes to mate and un-mate the facets of the selected input and output optical fibers.